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10/812,411

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Siegfried Schwarzl

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EXAMINER

MOORE, KARLA A

ART UNIT

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1792

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/812,411

Applicant(s)

SCHWARZL ET AL.

Examiner

Karla Moore

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 18-26 is/are pending in the application.
- 4a) Of the above claim(s) 8-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 18-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-7, 18 and 20-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,559,584 to Miyaji et al. in view of Japanese Patent No. 02-256256 A to Yoshida et al.

4. Regarding claim 1: Miyaji et al. disclose a lithography system for processing a substrate substantially as claimed and comprising: a projection optics chamber (PL); a vacuum mask chamber (Figure 1, R1); and means for maintaining the projection optics chamber and the vacuum mask chamber as separate atmospheres for isolating the

mask chamber from the projection optics chamber (column 3, rows 23-24; column 5, rows 22-25 and 30-38; and column 6, rows 44-51); and a gas supply line (column 5, rows 51-55) adapted to provide inert gas to the vacuum mask chamber and capable of dechucking the mask in the vacuum mask chamber (column 7, rows 41-46); and a vacuum pump (column 5, rows 51-55) adapted to evacuate the vacuum mask chamber.

5. However, although Miyaji et al. do disclose isolation of the vacuum mask chamber and the projection optics chamber, one or more vacuum valves disposed between the projection optics chamber and the vacuum mask chamber for isolating the vacuum mask chamber are not explicitly disclosed. It is however noted that in Figure 1 there appears to be a valve illustrated between the vacuum mask chamber and the projection optics chamber. The rectangular shaped structure with the "X" in the inside is a commonly used illustration for a valve.

6. Elsewhere in the disclosure Miyaji et al. disclose the use of vacuum valves for the purpose of maintaining isolation between separate vacuum environments (column 4, rows 1-31 and column 8, rows 1-18).

7. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided vacuum valves in Miyaji et al. in order to maintain isolation between adjacent independently evacuable regions as taught by Miyaji et al.

8. Regarding a claimed intended use of the apparatus (i.e. wherein the projection optics chamber is connected to a supply of gas only through the one or more vacuum valves), it is noted that the courts have ruled that a claim containing a "recitation with

respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). In the instant case, the state of the projection optics chamber being connected to a supply of gas is a state that is dependent on a method of using the apparatus. For example, if/when a supply of gas is not actively supplied through any of the gas supply lines (i.e. open) to the projection optics chamber, then it is not considered to be a connected supply of gas. If desired, a method could be performed where the projection optics chamber is connected to a supply of gas only through the one or more claimed vacuum valves.

9. Miyaji et al. disclose the invention substantially as claimed and as described above. They further teach a chuck (RT) mounted in the vacuum mask chamber for holding a reticle. See Figure 5 of Miyaji et al.

10. However, Miyaji et al. fail to teach the chuck comprising a contact surface for holding a back surface of the reticle; and a plurality of openings in the chuck, each opening having a first end and a second end, the first end of each opening being coupled to a gas supply line and the second end of each opening being couple the contact surface of the chuck.

11. Yoshida et al. teach a chuck comprising a contact surface for holding a back surface of an object; a plurality of openings in the chuck and providing a releasing gas through the plurality of openings in the chuck to the backside of a structure held on the

chuck for the purpose of forcibly releasing the structure while keeping the stable attitude of the structure (abstract).

12. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided teach a chuck comprising a contact surface for holding a back surface of an object; a plurality of openings in the chuck and providing a releasing gas through the plurality of openings in the chuck to the backside of a structure held on the chuck in Miyaji et al. in order to forcibly release the structure while keeping the stable attitude of the structure as taught by Yoshida et al.

13. With respect to claim 2, one or more of the vacuum valves are capable of being closed to isolate the vacuum mask chamber from the rest of the lithography system before venting the vacuum mask chamber with the inert gas provided by the gas supply line. Examiner notes that the courts have ruled that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)

14. With respect to claim 3, the inert gas may be nitrogen. However, Examiner notes that the courts have ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

15. With respect to claim 4, Miyaji et al. teach that the system can be effectively used at other wavelengths, for example extreme ultraviolet (column 7, rows 47-54).

16. The limitations of claims 5-7 are addressed above.

17. With respect to claims 18, the gas supply line is adapted for dechucking the mask in the vacuum mask chamber (column 7, rows 41-46).

18. With respect to claim 20, Miyaji et al. fairly teaches that that the system can be effectively used at wavelengths such as extreme ultraviolet (column 7, rows 47-54).

19. Regarding claims 21 and 25, which are substantially the same as claim 1, with the exception of the provision of two vacuum pumps (also described as "at least one means to remove the inert gas from the mask chamber; and at least one means to remove the inert gas from the projection optics chamber"), one for the mask chamber and one for the projection optics chamber, it is noted that the courts have ruled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). In the instant case the by providing individual vacuum pumps, the mask chamber and the projection optics chamber could be individually pumped down to unique conditions. Further, the provision of individual pumps would allow for quicker evacuation of the chambers. Such results are neither new, nor unexpected. Instead, the provision of the individual pumps and the results are achieved by such a provision would be obvious to one of ordinary skill in the art exercising ordinary common sense, creativity and logic.

20. With respect to claim 22, as described above, Miyaji et al. discloses at least one vacuum valve disposed between the projection optics chamber and the mask chamber,

wherein the projection optics chamber is connected to a gas supply through the at least one vacuum valve.

21. With respect to claim 23, Miyaji et al. teach that the system can be effectively used at wavelengths such as extreme ultraviolet (column 7, rows 47-54).

22. With respect to claim 24, Miyaji et al. disclose the invention substantially as claimed and as described above. They further teach a chuck (RT) mounted in the vacuum mask chamber for holding a reticle. See Figure 5 of Miyaji et al.

23. However, Miyaji et al. fail to teach the chuck comprising a contact surface for holding a back surface of the reticle; and a plurality of openings in the chuck, each opening having a first end and a second end, the first end of each opening being coupled to a gas supply line and the second end of each opening being couple the contact surface of the chuck.

24. Yoshida et al. teach a chuck comprising a contact surface for holding a back surface of an object; a plurality of openings in the chuck and providing a releasing gas through the plurality of openings in the chuck to the backside of a structure held on the chuck for the purpose of forcibly releasing the structure while keeping the stable attitude of the structure (abstract).

25. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided teach a chuck comprising a contact surface for holding a back surface of an object; a plurality of openings in the chuck and providing a releasing gas through the plurality of openings in the chuck to the backside

of a structure held on the chuck in Miyaji et al. in order to forcibly release the structure while keeping the stable attitude of the structure as taught by Yoshida et al.

26. With respect to claim 26, as described above, the lithography system comprises the at least one means to remove the inert gas from the projection optics chamber for the operation of the lithography system.

27. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyaji et al. and Yoshida et al. as applied to claims 1-7, 18 and 20-26 above, and further in view of Applicant's admitted prior art.

28. Miyaji et al. and Yoshida et al. disclose the invention substantially as claimed and as described above.

29. However, Miyaji et al. and Yoshida et al. fail to teach the projection optics chamber comprises a projection optics and a wafer stage.

30. Applicant's admitted prior art (AAPA) discloses that it is conventional to provides a chamber housing projection optics and a wafer stage (Figure 1; specification, page 2, paragraph 1).

31. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the projection optics chamber comprising projection optics and a wafer stage in Miyaji et al. and Yoshida et al. as is conventional in the art as taught by AAPA.

Response to Arguments

32. Applicant's arguments with respect to claims 1-7 and 18-26 have been considered but are moot in view of the new ground(s) of rejection. The combination of Miyaji et al., Yoshida et al., and AAPA disclose the newly recited limitations as described above. Most importantly, as described above, the relied upon prior art would be capable of the recited intended use, wherein the projection optics chamber is connected to a supply of gas only through the one or more vacuum valves.

Conclusion

33. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

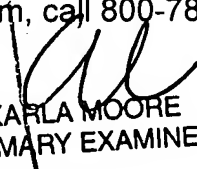
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


KARLA MOORE
PRIMARY EXAMINER

Art Unit 1792
19 November 2007